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## **Innovative Ethanol Production and Gasification Technologies**

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### **1. Desalination of seawater and extraction of fuel ethanol from waste fermented liquid biomass products**

The desalination system is based on a patented technology and method to use a crystal hydrate to absorb pure H<sup>2</sup>O from seawater. The technology gives the opportunity to use waste energy, renewable bioenergy or sun energy to operate a very simple and cost effective system to produce distillate water or drinking water. In small-scale applications (for household) the system operates with electricity.

Scientific tests has given the result that the same crystal hydrate, which is used in the desalination system, can be used for extraction of fuel ethanol from wine mash, fermented sugar juice or other fermented liquid products.

Gougel Industri AB (GIAB) develops the technology

### **2. Gasification processes, which convert biomass into absolute, clean syngas and utilize a catalytic process to convert the syngas to ethanol**

The technology is based on a pyrolytic/gasification system developed by Studsvik AB and commercialised in USA (The THOR-process). One of the responsible persons behind the THOR-process is the inventor Rolf Hesböl.

Rolf Hesböl has now invented a filter that makes it possible to produce an absolute clean syngas, which is the prerequisite of producing ethanol

The technique that will be used allows it to be construct as a mobile production plant. The system can be transported from place to place by trucks and/or railway.

The plant is suggested for use in processing a wide variety of organic wastes for example straw from Corn or Sweet Sorghum. Also organic municipal waste can be used.

The total system is named Idnar Processing Facility (IPF) (Idnar is the name of Rolf Hesböl's own company).